

CLAIMS

Having described the invention, what is claimed is as follows:

1. A rudder assembly including a mounting plate mounted to a boat stern pivotally about a vertical axis, a rudder mounted to the mounting plate pivotally about a first horizontal axis movable between a lowered position and raised position, and a tiller attached to the rudder pivotally about a second horizontal axis, the improvement comprising,

the tiller attached to the rudder by a control plate between the tiller and the rudder to which the tiller is rigidly attached and to which the rudder is pivotally attached about the second horizontal axis,

the first horizontal axis above and forward from the second horizontal axis when the rudder is in its lowered position,

an inclined runner on the mounting plate at its top facing generally toward the stern,

a spring biasing the rudder to its lowered position,

a guide on the tiller slidable on the runner, resting at the base of the incline when the rudder is in its lowered position,

whereas the rudder rotates away from its lowered position when its distal end strikes an object or when the tiller pulls the rudder from its lowered position, the rudder pivoting on both first and second horizontal axes raising the second horizontal axis and the control plate relative to the first horizontal axis and the mounting plate, therein lifting the tiller, the guide sliding on the runner, the rudder returning to its lowered position under

bias of the spring when the rudder passes over said object unless the object causes the rudder to rotate such that the guide is lifted beyond and disengages from the runner, in which case the guide is reset manually to the runner or continued to be rotated by the tiller to its raised position.

2. The rudder assembly of claim 1 further comprising a hook on the stern directed away from the rudder to which the tiller is secured in maintaining the rudder in its raised position.
3. The rudder assembly of claim 1 in which the tiller further comprises a tubular inner member telescoping from a tubular outer member and further comprising said spring in the outer member biasing the inner member into the outer member, therein urging the rudder to its lowered position.
4. The rudder assembly of claim 1 in which the rudder is pivotally connected to the mounting plate on a first rudder pivot pin at the first horizontal axis at the rudder proximal end.
5. The rudder assembly of claim 1 in which the control plate includes an interface surface engaging the mounting plate, the mounting plate stopping downward rotation of the control plate at the rudder lowered position.
6. The rudder assembly of claim 3 in which
the rudder is pivotally connected to the mounting plate on a first rudder pivot pin at the first horizontal axis at the rudder proximal end;
the control plate includes an interface surface engaging the mounting plate,
the mounting plate stopping downward rotation of the control plate at the rudder lowered position and further includes a shoulder on its upper end

over which the interface surface slides when the tiller pulls the control plate, the control plate rotating with the shoulder as a fulcrum of control plate rotation.

7. A catamaran having left and right hulls connected in parallel, a main sail on a mast, a jib, and a rudder assembly, the improvement comprising,
a main spar releasably connected centrally between the two hulls, the mast removably attached to thereto,
a stern spar releasably connected between the two hulls at the catamaran astern from the main spar,
a platform between the main spar and the stern spar,
and wherein the rudder assembly comprises a rudder hingedly attached removably to each hull stern with a tiller extending from each rudder toward the rear spar, adapted to move the rudder on a vertical axis in steering the catamaran, and a tiller arm interconnecting the tillers at their distal end such that lateral movement of the tiller arm causes the rudders to move on their vertical axes,
a bow spar releasably connected between the two hulls at the catamaran forward from the main spar,
stern lines connected between each of the first and second hulls sternward of the main spar and the mast intermediate its length and spaced apart from the main spar, and a bow line connected between the mast intermediate its length and the bow spar such that during catamaran assembly the bow spar pulls the mast attached to the main spar at its proximal end from horizontal to vertical and then connects to the hulls forward of the main spar, the three lines then

maintaining the mast vertical until the bow spar is released upon which it lowers the mast under control from vertical to horizontal.

8. The catamaran of claim 7 wherein the mast includes a vertical slot opening at the mast proximal end and further comprising a cord in a closed loop attaching the mast proximal end to the main spar by wrapping a lead portion of the loop from a main spar mast side around the main spar and back to the main spar mast side passing through a tail portion of the loop and then through the mast slot, the lead portion of the loop being releasably fastened in the mast slot, securing it alongside the main spar.
9. The catamaran of claim 8 further comprising a ball on the lead portion of the loop larger than the mast slot the fastens the loop lead portion in the slot by passing the lead portion of the loop under the mast and upward into the slot, the loop passing through the slot from the ball on one mast side to the main spar on the opposite mast side, the mast.
10. The catamaran of claim 7 wherein the platform comprises a trampoline.
11. The catamaran of claim 8 further comprising
a plurality of trampoline straps extending from a trampoline rearward edge and ending in a fastener first part,
a plurality of stern spar straps adjustable in length and extending from a stern spar forward edge and ending in a fastener second part adapted to engage the fastener first part, the trampoline tightened between the main spar and the stern spar by adjusting the length of the plurality of stern spar straps.

12. The catamaran of claim 11 wherein the trampoline further comprises a second trampoline loop at the trampoline rearward edge with a dowel running therethrough, disposed to distribute tension from the plurality of straps across the trampoline rearward edge.
13. The catamaran of claim 8 further comprising at least one looped jib strap sewn into the trampoline into which the jib can be quickly inserted and removed manually.
14. The catamaran of claim 7 further comprising a first set of two threaded rods upward from each hull over which matching holes in the main spar fit, removably secured thereon with main spar knobs with threaded holes that engage the threaded rods for quick, hand assembly and knockdown.
15. The catamaran of claim 7 further comprising a second set of two threaded rods upward from each hull over which matching holes in the stern spar fit, removably secured thereon with stern spar knobs with threaded holes that engage the threaded rods for quick, hand assembly and knockdown.
16. The catamaran of claim 7 in which the rudder assembly comprises
a mounting plate mounted pivotally to each hull stern about a vertical axis, a rudder mounted to the mounting plate pivotally about a first horizontal axis movable between a lowered position and raised position, and a tiller attached to each rudder pivotally about a second horizontal axis, the rudder pivotally connected to the mounting plate on a first rudder pivot pin at the first horizontal axis at the rudder proximal end,

each tiller attached to each rudder, respectively, by a control plate between the tiller and the rudder to which the tiller is rigidly attached and to which the rudder is pivotally attached about the second horizontal axis, the first horizontal axis above and spaced apart from the second horizontal axis when the rudder is in its lowered position, an inclined runner on the mounting plate at its top facing generally toward the stern, a guide on the tiller slidable on the runner, resting at the base of the incline when the rudder is in its lowered position, whereas the rudder rotates away from its lowered position when its distal end strikes an object or when the tiller pulls the rudder from its lowered position, the rudder pivoting on both first and second horizontal axes raising the second horizontal axis and the control plate relative to the first horizontal axis and the mounting plate, therein lifting the tiller, the guide sliding on the runner, the rudder returning to its lowered position under bias of a spring when the rudder passes over said object unless the object causes the rudder to rotate such that the guide is lifted beyond and disengages from the runner, in which case the guide is reset manually to the runner or continued to be rotated by the tiller to its raised position, the tiller comprising a tubular inner member telescoping from a tubular outer member and further comprising said spring in the outer member biasing the inner member into the outer member, therein urging the rudder to its lowered position,

the control plate including an interface surface engaging the mounting plate, the mounting plate stopping downward rotation of the control plate at the rudder lowered position; and further includes a shoulder on its upper end over which the interface surface slides when the tiller pulls the control plate, the control plate rotating with the shoulder as a fulcrum of control plate rotation.

17. The method of assembling a catamaran amenable to facile knockdown from components that include left and right hulls having a first set of two threaded rods extending upward from each hull, centrally in the hull, a second set of two threaded rods upward from each hull astern in the hull, and a hinge first part on each hull stern disposed to hingedly receive a rudder assembly having a hinge second part; two rudder assemblies each with a hinge second part; a main sail on a mast that has vertical slot on one mast side at the mast proximal end longitudinal with the mast opening at the mast proximal end; a jib, a main spar with a pair of holes in each main spar end matching the first set of two threaded rods in each hull; a stern spar with a pair of holes in each main spar end matching the second set of two threaded rods in each hull; a trampoline secured to the main spar; a tiller arm; a bow spar; stern lines; and a bow line; a cord; a plurality of trampoline straps extending from a trampoline rearward edge and ending in a fastener first part; a plurality of stern spar straps adjustable in length and extending from a stern spar forward edge and ending in a fastener second part adapted to engage the fastener first part; a plurality of knobs with threaded holes matching the threaded rods of the hulls; comprising the following steps:

- (a) with the hulls in parallel, connecting the two hulls with the main spar, the first set of two threaded rods upward from each hull passing through the pair of holes in each main spar end;
- (b) removably threading knobs over first set of two threaded rods central in each hull;
- (c) connecting the two hulls with the stern spar, the second set of two threaded rods upward from each hull passing through the pair of holes in each stern spar end, as the mast attached to the stern spar by the stern lines is brought to the mast stern along with the bow stern also attached to the mast with a bow line;
- (d) removably threading knobs over second set of two threaded rods astern in each hull;
- (e) extending the trampoline as a platform from the main spar toward the stern spar and connecting the plurality of trampoline straps extending from a trampoline rearward edge by engaging the respective fastener first parts with the fastener second parts of the plurality of stern spar straps,
- (f) adjusting the straps in length to tighten the trampoline between the main and stern spars;
- (g) hingedly attaching a rudder assembly to each hull stern by engaging the hinge first part on the hull stern with the hinge second part on the rudder assembly defining a hinge with a vertical axis on which the rudder swivels in steering the catamaran, with the tiller directed from the rudder toward the stern spar;

- (h) connecting a tiller arm between distal ends of the tiller such that lateral movement of the tiller arm causes the rudders to move on their vertical axes;
- (i) raising the mast with main sail attached from horizontal to vertical with the mast abutting the main spar perpendicularly through the bow line connected between the bow spar and the mast by pulling the bow spar forward and attaching it to the bow of each hull, stern lines connected between each of the first and second hulls sternward of the main spar and the mast intermediate its length and spaced apart from the main spar together with the bow line maintaining the mast vertical as guy lines.

18. The method of claim 17 further including the step tying the mast extension to the main spar with the mast alongside the main spar by wrapping the cord around the main spar and passing it through the slot, fastening it therein such that the cord passing through the slot is prevented from returning out of the slot back toward the main spar.

19. The method of releasing a rudder mounted pivotally to a boat stern from its lowered position such that it lifts when going forward and impacts an object below waterline and returns to its lowered position upon passing the object, comprising the following steps:

- (a) Installing a mounting plate between the rudder and the boat stern with the mounting plate mounted to the stern hingedly about a vertical axis, mounting plate having an inclined runner on the mounting plate at its top facing generally toward the stern;

- (b) Mounting the rudder to the mounting plate pivotally about a first horizontal axis with the rudder movable on the first horizontal axis between a lowered position and raised position, the rudder rotating away from its lowered position on the first horizontal axis when its distal end strikes an object;
- (c) Connecting the rudder pivotably to a control plate about a second horizontal axis, the first horizontal axis above and spaced apart from the second horizontal axis when the rudder is in its lowered position;
- (d) Connecting a tiller to the control plate rigidly,
- (e) Guiding the rudder from its lowered position to a raised position and returning to its lowered position through a guide on the tiller urged against the runner on which it slides up and down as the rudder lifts and lowers, resting at the base of the incline when the rudder is in its lowered position, the rudder pivoting on both first and second horizontal axes raising the second horizontal axis and the control plate relative to the first horizontal axis and the mounting plate, therein lifting the tiller with the guide sliding on the runner, the rudder returning to its lowered position under bias of a spring when the rudder passes over said object.